

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1  
F7685

U.S. DEPT. OF AGRICULTURE.

Survey of pulp woods on the public  
domain... 1920.

LIBRARY  
OF THE  
UNITED STATES  
DEPARTMENT OF AGRICULTURE

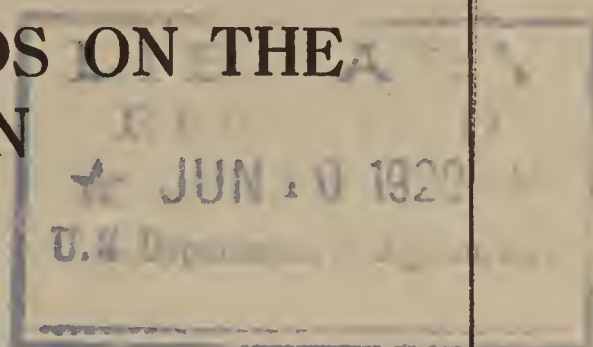
*Class* ..... 1 .....

*Book* ..... F7685 .....



# SURVEY OF PULP WOODS ON THE PUBLIC DOMAIN

---



A LETTER FROM  
THE SECRETARY OF AGRICULTURE TO THE  
CHAIRMAN OF THE SENATE COMMITTEE ON  
AGRICULTURE AND FORESTRY

UPON THE MERITS OF THE BILL (S. 3555) AUTHORIZING  
THE SECRETARY OF AGRICULTURE TO MAKE A SURVEY  
OF PULP WOODS ON THE PUBLIC DOMAIN AND TO PRE-  
PARE A PLAN FOR THE REFORESTATION OF PULP-WOOD  
LANDS AND APPROPRIATING THE SUM OF  
\$1,000,000 FOR THESE PURPOSES



PRESENTED BY MR. POINDEXTER

FEBRUARY 25, 1920.—Ordered to be printed



## SURVEY OF PULP WOODS ON THE PUBLIC DOMAIN.

---

JANUARY 22, 1920.

Hon. A. J. GRONNA,  
*United States Senate.*

MY DEAR SENATOR: Receipt is acknowledged of your request of January 7 for a report upon the bill (S. 3555) authorizing the Secretary of Agriculture to make a survey of pulp woods on the public domain and to prepare a plan for the reforestation of pulp-wood lands, and appropriating the sum of \$1,000,000 for these purposes.

In substance, the measure would authorize the Secretary of Agriculture to cause a survey to be made of the classes and kinds of timber existing on the public domain, including the national forest, Indian, and other reservations, and on private lands intermingled therewith which are suitable for pulp wood for newsprint and other forms of paper. The purpose of the survey is to determine the location, quantity, quality, and character of the pulp woods on Government-controlled lands and adjacent private lands and to determine as far as possible their availability and the most practical means for their utilization. Section 2 would require the Secretary of Agriculture to report to Congress upon the present conditions in this country in respect to the current consumption and protection of pulp woods, together with a plan for assuring a sufficient supply for future use. Section 3 would appropriate a million dollars to enable the Secretary of Agriculture to carry out the purposes of the act.

This bill, in the opinion of the Department of Agriculture, offers the first real opportunity to get at the fundamental causes of the present and past difficulties connected with the production of newsprint and other forms of paper, and to furnish the basis for a definite provision for the future. The following report deals especially with the newsprint situation and its bearing upon the advisability of the survey; for while the involved character of the industry and the involved relation in the uses of different classes of pulp and paper will make it necessary to cover the whole pulp and paper field in the proposed survey, I place first emphasis on the newsprint woods because they are absolutely necessary in supplying the press.

Apparently the crux of the present newsprint crisis is in a shortage of paper-manufacturing facilities. The fundamental trouble, however, lies far deeper; it lies in such factors as the overcentralization of the industry in the Northeast and the Lake States, now being heavily overcut, with little or no provision for continued timber production, and the almost total lack of development of the industry in the West and in southeastern Alaska, where there are still large supplies of timber eminently suitable for newsprint manufacture.

As is well known, the use of wood pulp on a large scale for paper making is comparatively recent. Practically the entire development



in the United States and elsewhere has taken place within the last 50 years. Previous to that time paper was commonly made from rags, various plant fibers, straw, and reed. Wood pulp has displaced practically all of these materials, except in the better grades of paper, which are still made of rags or special plant fibers.

The comparative importance of the various classes of paper and the place of newsprint in paper manufacture are indicated to a considerable extent by the amount of each that is produced. In 1914 newsprint comprised 26 per cent of our total paper production in the United States and held first place, but in 1916-17 it had dropped to 22 per cent of our total paper production of something over six and a half million tons and was second to "boards." Newsprint paper is used for newspapers and also in large quantities for catalogues, directories, guides, handbills, cheap magazines, books, etc. "Board" production has increased greatly within the last five years, and in 1916-17 held first place with 30 per cent of the total paper production. It competes with newsprint for sulphite and ground-wood pulp. Board includes the coarse, heavy cardboards used for cardboard boxes, cartons, corrugated boxes and wrappers, wall board, display cards, shipping tags, and a wide range of similar products. Wrapping paper in 1916-17 made up about 17 per cent of our total production; book paper about 15 per cent; writing and building papers, a little more than 5 per cent each; and all other classes together, the remainder of less than 6 per cent.

The total American production of wood pulp for 1918 amounted to 3,313,861 tons. This total was divided as follows among the four processes employed in the manufacture of wood pulp:

|                                | Tons.       |
|--------------------------------|-------------|
| Sulphate.....                  | 142, 362    |
| Soda.....                      | 350, 362    |
| Sulphite.....                  | 1, 456, 633 |
| Mechanical or ground wood..... | 1, 364, 504 |

The sulphate process, the least important of the four from the standpoint of total output, as late as 1914 produced only slightly more than 50,000 tons. Almost any of the coniferous timbers can be used in the manufacture of sulphate pulp, a strong unbleached pulp, useful primarily for kraft or wrapping paper and high-grade boards. In the soda pulp process such hardwoods as poplar, birch, cottonwood, and basswood are used. The pulp produced goes primarily into book, writing, letter, and high-grade printing papers. Mechanical or ground-wood pulp, which is practically equal in amount produced to sulphite pulp, is used primarily in newsprint paper and in board. Sulphite pulp is also used in the manufacture of newsprint as well as in a rather wide range of other papers, such as wrapping, book, printing, etc. Ground-wood pulp and sulphite pulp are used in the proportion of about 4 to 1 in newsprint. The former is used chiefly because it is the cheapest satisfactory pulp on the market, and the latter only in sufficient quantity to give the strength necessary for printing.

Before the war ground-wood pulp cost about \$14 per ton to manufacture, and the chemical pulps approximately twice this amount. On a prewar basis newsprint paper sold for about \$2 per hundred pounds, wrapping for \$2 to \$3, book for \$4 to \$6, and writing for \$6 to \$16 and up. The low cost of newsprint made the cheap American



newspaper possible, and this in turn greatly stimulated the demand for newsprint.

The rapidity as well as the regularity in the increase of newsprint consumption in the United States in the past should receive particular consideration as indicative of future requirements. In 1899 our consumption amounted to 569,000 tons. In 1918 it had increased to 1,760,000 tons, approximately 200 per cent, and almost regularly at the rate of 10 per cent a year. During the same period the population of the United States had increased only approximately 70 per cent. The use of newsprint paper has been increasing, therefore, much more rapidly than the population. This is borne out by the fact that consumption in regions of densest population is far greater per capita than in regions of sparse population. There is no reason to anticipate decreasing future demands for newsprint. Any decrease in the consumption rate will necessarily be due to serious shortage of supplies or prohibitive prices, and in any case can hardly be viewed without alarm, because newsprint paper has so thoroughly established its place in our economic life. The present situation is an example of the acute distress which is caused by any enforced curtailment. I regard the present exceptional demands, which are in part due to greatly increased newspaper advertising, as merely one crisis in a general movement which has been under way for several decades. Any solution of the problem which fails to take into account the regularity and amount of the past and probable future increased demands for newsprint paper will accomplish very little and will inevitably result in a series of critical periods such as have characterized the newsprint situation during the past few years. A normal and increasing demand can be met most satisfactorily by increased production.

Before considering the extent to which the United States is supplying its domestic requirements, I desire to direct your attention to the importance of the country's being on an independent basis so far as newsprint production and the necessary raw materials are concerned. First, there is the question of price. If we are to be dependent upon foreign sources for either pulp wood or pulp or newsprint, the American consumer will be at the mercy of the foreign manufacturer as to prices. Our industry will also be held under the continued threat of embargo, which, even now, is far from being a theoretical menace. All exports of pulp wood are prohibited from the colony of Newfoundland. The Canadian Provinces have prohibited the export of pulp wood from Crown lands, which form a very considerable extent of the timberlands both in eastern and western Canada. For a year or more American manufacturers have been apprehensive concerning the possibility of an embargo on all pulp-wood exports from Canada, and it would unquestionably be desirable to make the United States as nearly self-supporting as possible.

In lumber the United States is still an exporting country, but in pulp wood and pulp we have become large importers. As late as 1909 the United States produced its entire newsprint supply. In 1919 we had become dependent upon foreign sources for two-thirds of our newsprint or its raw materials. Only one-third of the American newspapers issued in 1919 were printed upon the product of American forests. This startling change has taken place in 10 years. So far as timber supplies are concerned we are in a much worse position



than we were 10 years ago, and our consumption has increased 100 per cent while our newsprint manufacturing industry has been at a standstill.

It is important to consider briefly some of the factors which have led to our rapidly increasing dependence upon foreign supplies and which have been responsible for the fact that but one newsprint plant has been constructed in the United States since 1909.

The demand for a tough ground-wood pulp to hold to a minimum the use of the more expensive sulphite necessitated the use of long-fiber woods. Low prices forced the use of light-colored woods, which need little or no bleaching, and woods which can be reduced with comparative ease. The more resinous woods offer mechanical difficulties in newsprint manufacture which it has not yet been possible to overcome satisfactorily. These factors together have very greatly restricted the number of species which have gone into newsprint paper, and incidentally into all kinds of pulp and paper. Eighty-four per cent of the total pulp manufactured in 1918 was made from four species—spruce 55, hemlock 16, balsam 7, and poplar 6. In the East these species occur chiefly in New England and the Lake States. The present overconcentration of the industry in the Northeast and the Lake States and the consequent serious overcutting of the timber in those regions is due in no small degree to this restricted use.

An important factor which has tended to prevent the development of the newsprint industry has been its inability, as contrasted with the case of the lumber industry, to follow the timber. We have seen the lumber industry centralized first in New England, then successively in New York, Pennsylvania, and the Lake States, and now in the South, with the movement toward the Pacific Northwest, our last great timber reserve, well underway. This movement has followed the comparative exhaustion of the earlier timber supplies. Such a movement in lumber manufacture is made possible through the much smaller investment per unit of output in the lumber than in the pulp and paper plant. Roughly, an investment of \$1,500 per thousand board feet of daily product is required in lumber manufacture, whereas the pulp and paper establishments require approximately \$50,000 per thousand board feet of daily consumption. Large investments have therefore tended to hold the industry in the region first established, primarily New England and New York, and timber has been hauled increasing distances to the manufacturing plant. A rail and water transport exceeding 500 miles is not now uncommon for American pulp mills. For the manufacture of ground-wood pulp cheap hydromechanical power is essential and may be the key to its possible manufacture.

No other manufacturer using wood is so dependent as the pulp and paper maker upon long-time or permanent supplies of the right kinds of timber. Modern financing of pulp and paper mills asks from 30 to 40 years' supply under control, but there should be a reasonably assured 100 years' or perpetual supply. When such supplies could no longer be found in New England and the Lake States the expansion of the industry stopped. Our dependence upon Canadian pulp wood indicated that in fact it was overdeveloped. We imported 1,370,027 cords of pulp wood from Canada in 1918, and prices for



wood which were about \$10 per cord in 1916 reached as high as \$25 in 1919.

Canada, by welcoming the manufacture of pulp and paper in her own territory, has absorbed North American expansion in newsprint production. The prohibition of export of pulp wood from Crown lands was primarily to force manufacture on Canadian soil, and the Canadian Government has encouraged the development of pulp and paper manufacture in other ways so successfully that in the 10 years preceding 1919 the number of pulp mills in Canada was increased 57 per cent and the output increased manifold because of the installation of the most modern equipment, while our own industry was at a standstill.

Prior to the construction of the Panama Canal, when eastern Canada was much more successful than the west to the large American consuming market in the Northeastern and Middle Western States, and when prices were at 2 cents a pound, the west coast product, with the long rail haul, could not compete with Canadian material. The period between the completion of the Panama Canal and our entrance into the war was too short to permit the development of a west coast industry. The general lack of authoritative information about western timber supplies and the economic conditions bearing upon successful manufacture probably all tended to retard development.

Prewar prices of newsprint, as already indicated, averaged about 2 cents a pound, which was much cheaper than other papers. There was probably a decided tendency on the part of American manufacturers to turn to other classes of paper solely because of the opportunity for greater profits; and before the present period of high prices there was a decided drift toward other forms of paper manufacture.

For these reasons, no attempt being made to weigh their comparative value, there has been no growth in our newsprint industry since 1909, and we have been increasingly dependent on foreign supplies. The industry has remained stationary, centered very largely in the Northeast and the Lake States. Of the 865 pulp and paper establishments reported in 1918, fully 75 per cent are in the Northeast and in the Lake States. Thirty per cent of the newsprint manufacturing industry is in New England, nearly 50 per cent additional in New York, and 15 per cent in the Lake States. There are the regions of our first and heaviest timber cuttings. The four species—spruce, hemlock, fir, and poplar—which furnish 84 per cent of the raw material, are being heavily overcut. Large areas once covered with pulp timber have been cut over and burned over and are now producing little or nothing. For New England and New York the meager information available gives every indication that at the present rate of cutting supplies will be exhausted within 20 years. For New York alone the situation appears to be still worse. If the estimates given by industrial associations are accepted, supplies at the present rate of cutting will be exhausted in less than 10 years, not considering the State lands upon which, to safeguard them for scenic and recreation purposes, cutting is prohibited by the constitution.

Coincident with the centralization of the industry in the Northeast and Lake States, where the annual cut exceeds by two or three times the growth of the forest, there has been practically no development



in either the Pacific Northwest or in southeastern Alaska, where our largest remaining timber supplies suitable for news print are located. In these regions we have spruce, hemlock, and fir, which have been shown to be as suitable for news print as the eastern species. The forests of southeastern Alaska alone could probably supply one-half of our present news-print requirements if means could be found for developing an industry.

During the time that our own news-print industry has been at a standstill the United States has become so dependent upon Canada that some consideration must be given the Canadian situation in connection with our own problem. It has been commonly believed that the supply of pulp wood in eastern Canada is inexhaustible. There has been a remarkable expansion in the Canadian industry during the past few years, and there is every reason to believe that it will continue to expand for several years to come. Unfortunately, the more that is known of the Canadian supplies the smaller they are found to be. The best information available indicates that at the present rate of cutting they will be practically exhausted in the eastern Provinces in 25 years and that the beginning of the reduction in output will be keenly felt by the American consumer within a decade. The reduction, when it comes, will be felt first and most by the American consumer. The only Canadian Province where large expansion on a sustained basis can be expected is British Columbia, and even this may not be sufficient to offset the probable decline in eastern Canada. I understood that various agencies are seriously recommending in Canada a survey similar to that proposed in Senator Poindexter's bill. The facts, so far as known, all indicate that the United States can not permanently rely on obtaining increased supplies of pulp wood and news-print paper from Canada, even though that should be considered desirable as a matter of public policy.

Prior to the war the United States was importing pulp from Europe, chiefly from Scandinavia. Imports of wood pulp from Norway and Sweden in 1913 were slightly in excess of 235,000 tons. The Scandinavian exports were largely sulphite pulp, for which news print has to compete with boards and other papers. These imports were shut off during the war and the place of Norway and Sweden was taken by Canada. The forests of Norway have been very heavily overcut, and those of Sweden are being cut to the limit of their actual growth. There were large timber surpluses in the forests of the former Provinces of Russia, such as Finland, before the war, and there may be quite a large development of the pulp and paper industry during the next few years. In any consideration of Europe as a possible source of future news-print supplies, however, we must take into account the fact that we shall have to compete with several countries—Germany, which is far from self-supporting, England, France, and the south of Europe countries which produce little or no pulp, and with Australia, Asia, and South America. We shall undoubtedly be able to get some help from Europe, but it would be very unwise to depend on it to meet any substantial part of our requirements now or later.

The substitution of pulp from some fiber crop for the present wood-pulp base of news-print is often suggested. The chief difficulty in the case of all fibers is that of sufficiently large production and collection of suitable raw materials to compete in cost or bulk with the enormous quantities of wood which can be secured per unit of area.



Up to the present time there has been no possibility whatever of such competition. Cotton linters would be one of the most promising of such materials, but according to the best data obtainable their manufacture would cost at least twice as much as the manufacture of wood-pulp news print, and the whole available supply of cotton linters would be absorbed in the normal year's increased demand for news print.

Since we can not depend upon substitutes or foreign supplies or our own industry as now developed, there are two alternatives before us. We may continue to allow the situation to take care of itself, with possibly some temporary makeshifts of a remedial character. In time private industry, if left to its own initiative, will develop pulp and paper manufacture in the Pacific Northwest and in Alaska. It is certain, however, that development will be comparatively slow; that the necessary exploration can be undertaken only by the strongest financial concerns; that we shall face a continued and increasingly serious newsprint shortage, and that the brunt of this shortage will fall upon the smaller and weaker newspapers, which will not be able to compete with the strong metropolitan press. We shall become more and more dependent upon foreign sources, with all that that may mean in the dictation of prices and the menace of embargoes. In the meantime, there will be no adequate knowledge of what our remaining timber supplies are, how rapidly the cut and destruction each year are being replaced in new growth, how far short of possible production the actual growth on timbered land is, what areas suitable for forests are now entirely waste and not producing at all, what the life of the industry will be, and finally, to what the press and the public may look forward.

The alternative is for the Government to recognize the serious character of the present situation and not merely as a temporary crisis but as an indication of a growing timber shortage and a serious overlocalization and underdevelopment of the newsprint industry as compared with our requirements, and to take the initiative in the development of a policy which will make the United States as nearly self-sustaining in newsprint production as our resources permit. To aid in meeting the requirements of the next 15 years this policy should:

- (1) Attempt the development of the industry in the Pacific Northwest and in southeastern Alaska, where we still have timber, and
- (2) Develop plans for the perpetuation and increased production of timber not only in the West but also in the East, which is now being heavily overcut.

It will be necessary for the Government to take the initiative unless we are willing to see the smaller and weaker newspapers crushed out in competition, unless we are willing to see the United States become still more dependent upon foreign control, and finally, unless in the course of 25 years we are willing to see all sources of newsprint, domestic and foreign alike, very materially reduced.

While other kinds of timber than those used for groundwood and sulphite pulp and newsprint paper are not so important, there are other species and other pulps which should receive attention. For example, 142,362 tons of sulphate pulp were manufactured in the United States in 1918, and 75 per cent as much as this, or 109,393 tons, was imported. Waste material of a number of species is entirely suitable for the sulphate process and enough waste material



is destroyed in the United States each year to supply the sulphate pulp requirements of the world. Here also is the possibility of working out methods by which the papers derived from sulphate pulp might replace those derived from the groundwood or sulphite pulps.

I believe that the favorable consideration of Senator Poindexter's bill constitutes the logical preliminary step to the development of the pulp and paper industry in the West and in Alaska and to the preparation of a plan for the continued production of pulp timber in the East and West alike. If the measure were passed, the department now feels that the following plan would be productive of excellent results:

1. Survey of pulp woods on the public domain and intermingled and adjacent privately owned lands to secure information on the kinds, amount, character, accessibility, etc., of the timber. This information should be secured with particular reference to the availability of the timbers and the most practicable means for their use in the manufacture of pulp wood. In general, this phase of the survey should be extensive in character, but in the case of a limited number of areas of particular promise for pulp or paper manufacture more detailed data should be secured as a basis for early development. This phase of the survey should be confined almost exclusively to the north Rocky Mountain and Pacific Coast States and southeastern Alaska.

2. As a basis for the preparation of the plan called for in section 2 of this bill for assuring a sufficient supply of pulp wood for future use by reforestation or otherwise, the securing of supplemental information of a more general character for each of the important regions which are now or should be supplying pulp woods. This supplemental information should include for lands privately or otherwise owned data on the existing stands of timber as to quantity, acreage, condition with reference to growth and production, and rate at which it is being cut, the acreage and condition of cut-over and burned and unproductive or only partially productive lands. Existing information from all available sources should be used and checked and supplemented only as far as necessary as a basis for the plan.

3. Intensive study of such other possibilities as the collection and repulping of newsprint paper and its reuse with the proper admixture of new sulphite pulp to secure strength and the greatly increased manufacture of sulphate pulp from some such resinous wood as southern pine in order to replace the sulphite and ground-wood pulp in wrapping and bag paper, containers, board, etc., thereby releasing spruce, balsam, and hemlock for newsprint. These and other questions of a more or less similar character would have an important bearing upon insuring sufficient supplies of pulp wood for specific purposes such as newsprint.

For the reasons given above the department recommends favorable consideration of the measure, in the belief that it provides an opportunity for a real solution of the newsprint shortage, the most important and urgent of our present pulp and paper questions. Because of the large areas to be covered and the difficult problems to be considered, it is not believed that the work can be done for less than the amount specified in the bill.

Very truly, yours,

DAVID F. HOUSTON, *Secretary.*







ulture.

1920.

da...



